

CLAIMS

1. A communication system (1) including a plurality of subscriber-side units (4-1 to 4-N: N is a natural number)
5 manufactured by respective desired vendors and a station-side unit (2) manufactured by a desired vendor accommodating the subscriber-side units (4-i: i=1 to N), the station-side unit (2) being capable of carrying out a point-to-multipoint communication with all of the subscriber-side units (4-i)
10 by sending a message in a manner of point-to-multipoint communication,

the station-side unit (2) comprising:

a point-to-multipoint message generating unit (2A) for generating a point-to-multipoint message; and

15 a group designating message generating unit (2B) for generating a group designating message to designate some of the subscriber-side units as a component constituting a group of units which are to receive the point-to-multipoint message, and

20 the subscriber-side unit (4-i) comprising:

a point-to-multipoint message processing unit (4A) for receiving and processing the point-to-multipoint message from the station-side unit (2); and

a state control unit (4B) for controlling, in response
25 to a reception of the group designating message from the station-side unit, a status of the reception and the processing for the point-to-multipoint message in the

point-to-multipoint message processing unit (4A) to a valid status.

2. A method of processing a message for use in a communication
5 system (1) including a plurality of subscriber-side units
(4-1) manufactured by respective desired vendors and a
station-side unit (2) manufactured by a desired vendor
accommodating the subscriber-side units (4-1), the
station-side unit (2) being capable of carrying out a
10 point-to-multipoint communication with all of the
subscriber-side units (4-1) by sending a message in a manner
of point-to-multipoint communication, wherein

the station-side unit (2) designates some of the
subscriber-side units (4-1) as a component constituting a
15 group of units which are to receive a point-to-multipoint
message, and

only the subscriber-side units (4-1) designated as the
component constituting the group of units are allowed to
receive and process the broadcast message sent from the
20 station-side unit (2) in the manner of point-to-multipoint
communication.

3. A method of processing a message for use in a communication
system according to Claim 2, wherein the station-side unit
25 (2) designates the subscriber-side units manufactured by an
identical vendor as a component constituting the group of
units.

4. A method of processing a message for use in a communication system according to Claim 2, wherein the station-side unit (2) designates some of the subscriber-side units manufactured by an identical vendor as a component constituting the group of units.

5. A station-side unit accommodating a plurality of subscriber-side units (4-1) manufactured by respective desired vendors, the station-side unit being capable of carrying out a point-to-multipoint communication with all of the subscriber-side units (4-1) by sending a message in a manner of point-to-multipoint communication, the station-side unit (2) comprising:

15 a point-to-multipoint message generating unit (2A) generating a broadcast message in a manner of point-to-multipoint communication; and

a group designating message generating unit (2B) for generating a group designating message to designate some of the subscriber-side units as a component constituting a group of units which are to receive the point-to-multipoint communication message.

6. A station-side unit according to Claim 5 in which each of the subscriber-side units (4-1) is assigned with vendor identification information, wherein

the group designating message generating unit (2A)

comprises

a first vendor group designating message generating unit (2B-1) for generating a vendor group designating message having the vendor identification information addressed to the subscriber-side units (4-1) manufactured by an identical vendor as the group designating message, whereby the subscriber-side units (4-1) are designated as a component constituting the group of units.

7. A station-side unit according to Claim 5 in which each of the subscriber-side units (4-1) is assigned with unit identification information specific to each vendor, wherein the group designating message generating unit (2B) comprises

a second vendor group designating message generating unit (2B-2) for generating a vendor group designating message having the unit identification information addressed to specific ones of the subscriber-side units (4-1) manufactured by an identical vendor as the group designating message, so that some of the subscriber-side units (4-1) are designated as a component constituting the group of units.

8. A station-side unit according to Claim 5, comprising a group designation canceling unit (2C) for generating a group canceling message which cancels the designation of the grouping effected on arbitrary subscriber-side units (4-1).

9. A station-side unit according to Claim 8, wherein
the group designation canceling unit (2C) is arranged
so that, after the group of units is designated, if the
station-side unit receives no reply message on the designation
5 from the subscriber-side unit (4-1) for a predetermined period
of time, then the group canceling message addressed to at
least the subscriber-side unit (4-1) is generated.

10. A station-side unit according to Claim 8, wherein
10 the group designation canceling unit (2C) is arranged
so that, when a group designation canceling request is received
from the subscriber-side unit (4-1), then the group canceling
message is sent to at least the subscriber-side unit (4-1)
which has requested the group designation canceling.

15 11. A station-side unit according to Claim 5, wherein
the group designation message generating unit (2B) is
arranged in such a manner that, when a group designation request
is received from the subscriber-side unit (4-1), then the
20 group designation message generating unit generates the group
designating message so that at least the subscriber-side unit
(4-1) having requested the group designation is designated
as a component constituting the group of units.

25 12. A station-side unit according to Claim 5, wherein
the group designation message generating unit (2B)
comprises a group identification information assignment

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message generating unit (2B-3) for generating an assignment message to the subscriber-side units (4-1) to be designated as a component constituting the group of units as a group designating message, whereby the subscriber-side units are

5 assigned with the same group identification information, and

the point-to-multipoint message generating unit (2A) is arranged as a group identification information attaching type point-to-multipoint message generating unit (2E) which sends a point-to-multipoint message having the group

10 identification information to the component constituting the group of units.

13. A station-side unit according to Claim 12, wherein the group identification information message

15 generating unit (2B-3) comprises a vendor identification information giving unit (2F) for giving vendor identification information specific to the subscriber-side unit (4-1) to the assignment message, so that the subscriber-side units (4-1) manufactured by an identical vendor can be designated

20 as a component constituting the group of units.

14. A station-side unit according to Claim 5, comprising a point-to-multipoint message number confirmation requesting unit (2D) for requesting from the subscriber-side unit (4-1)

25 so as to confirm the number of received point-to-multipoint communication messages.

15. A subscriber-side unit accommodated together with other subscriber-side units (4-i) in a point-to-multipoint communication network handled by a station-side unit (2) which is manufactured by a desired vendor and capable of carrying out point-to-multipoint communication with all subscriber-side units (4-i), the subscriber-side unit (4-i) comprising:

5 a point-to-multipoint message processing unit (4A) for receiving and processing the point-to-multipoint message from the station-side unit (2), and

10 a state control unit (4B) for controlling, in response to a reception of a group designating message from the station-side unit (2) which designates the subscriber-side unit as a component constituting a group of units which is to receive the point-to-multipoint message, a status of the reception and the processing for the point-to-multipoint message in the point-to-multipoint message processing unit (4A) to a valid status.

20 16. A subscriber-side unit for use with other subscriber-side units (4-i) according to Claim 15, each of which is assigned with vendor identification information and accommodated in the network handled by the station-side unit (2) which is arranged to send a vendor group designating message attached with the vendor identification information to the subscriber-side units (4-i) so that the subscriber-side units (4-i) manufactured by an identical vendor are designated as

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a component constituting the group of units, wherein

the state control unit (4B) comprises

a first vendor identification information comparing
determining unit (4C) for comparing the vendor identification

5 information given to the vendor group designating message
sent from the station-side unit (2) with the vendor
identification information assigned to its own

subscriber-side unit, thereby to determine whether or not
the two pieces of vendor identification information are

10 coincident with each other, and

if the first vendor identification information
comparing determining unit (4C) determines that the two pieces
of vendor identification information are coincident with each
other, then the reception and the processing for the

15 point-to-multipoint message in the point-to-multipoint
message processing unit (4A) are brought to a valid status.

17. A subscriber-side unit for use with other subscriber-side
units (4-1) according to Claim 15, each of which is assigned

20 with unit identification information specific to each vendor
and accommodated in the network handled by the station-side
unit (2) which is arranged to send a vendor group designating
message having a plurality of the unit identification
information to the subscriber-side units (4-1) so that

25 specific ones of the subscriber-side units (4-1) manufactured
by an identical vendor are designated as a component
constituting the group of units, wherein

the state control unit (4B) comprises
a unit identification information determining unit (4G)
for determining whether or not the unit identification
information given to the vendor group designating message
5 sent from the station-side unit (2) contains the unit
identification information assigned to its own
subscriber-side unit, and

if the unit identification information determining unit
(4G) determines that the unit identification information
10 assigned to its own subscriber-side unit is contained, then
the reception and the processing for the point-to-multipoint
message handled by the point-to-multipoint message processing
unit (4A) are brought to a valid status.

15 18. A subscriber-side unit according to Claim 15, wherein
the state control unit (4B) comprises a canceling control
unit (4D) arranged in such a manner that

when the subscriber-side unit receives a group canceling
message for canceling the designation on the subscriber-side
20 unit itself as a component constituting a group of units from
the station-side unit (2), then the reception and the
processing for the point-to-multipoint message in the
point-to-multipoint message processing unit (4A) are brought
to an invalid status.

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19. A subscriber-side unit according to Claim 15, wherein
the state control unit (4B) comprises a reply message returning

unit (4E) which returns a reply message to the station-side unit (2) when the state control unit (4B) controls the point-to-multipoint message processing unit (4A) so as to bring the reception and the processing on the
5 point-to-multipoint message to a valid status.

20. A subscriber-side unit according to Claim 15, comprising a group designation cancellation requesting unit (44-6) for requesting cancellation of the designation on the
10 subscriber-side unit itself as a component constituting a group of units from the station-side unit (2).

21. A subscriber-side unit according to Claim 15, comprising a group designation requesting unit (4F) for requesting the
15 designation on the subscriber-side unit itself as a component constituting a group of units from the station-side unit (2).

22. A subscriber-side unit according to Claim 15 for use with a station-side unit (2) which is arranged to generate an
20 assigning message for assigning identical group identification information to subscriber-side units (4-1) to be designated as a component constituting a group of units, and also generates a point-to-multipoint message which is given the group identification information and addressed to
25 the group of units, wherein

the state control unit (4B) comprises
a group identification information holding unit (73-2)

for holding the group identification information assigned by the assigning message sent from the station-side unit, and

5 a group identification information comparing
determining unit (74-1) for comparing the group
identification information given to the point-to-multipoint
message sent from the station-side unit (2) with group
identification information held in the group identification
information holding unit (73-2), thereby to determine whether
10 or not the two pieces of information are coincident with each
other, and

the state control unit is arranged to carry out control
in such a manner that, if the group identification information
comparing determining unit (74-1) determines that the two
15 pieces of information are coincident with each other, then
the reception and the processing for the point-to-multipoint
message in the point-to-multipoint message processing unit
(4A) are brought to a valid status.

20 23. A subscriber-side unit according to Claim 22 for use with
a station-side unit (2) which is arranged to give vendor
identification information specific to the subscriber-side
unit (4-1) to the assignment message so that the
subscriber-side units manufactured by an identical vendor
25 can be designated as a component constituting the group of
units, the subscriber-side unit comprising:

a second vendor identification information comparing

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determining unit (4J) for comparing the vendor identification information given to the assignment message with the vendor identification information assigned to its own subscriber-side unit, thereby to determine whether the two
5 pieces of vendor identification information are coincident with each other or not, wherein

if the second vendor identification information comparing determining unit (4J) determines that the two pieces of vendor identification information are coincident with each
10 other, then the group identification information holding unit (73-2) holds the group identification information.

24. A subscriber-side unit according to Claim 15, comprising:
a message counting unit (74-2) for counting a number
15 of point-to-multipoint messages received by the point-to-multipoint message processing unit (4A); and
a received message number notifying unit (4H) for notifying the station-side unit (2) of the counting result yielded by the message counting unit (74-2) when a confirmation
20 request on the received number of the point-to-multipoint messages is received from the station-side unit (2)